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THE RIGHT TO HEALTH

BY WILLIAM J. MAYO, M. D.

THE physician of the old school, with his top hat and double-breasted frock coat, who practised as an individual in all branches of medicine and surgery, has practically disappeared. He has given place to a new type of physician, who works, not as an individual, but as a part of an organization in which the State, in one way or another, has become his partner and aids him in his work.

Civilization and intellectual growth depend largely on preventive medicine. If each person were left to develop his own resistance and immunity, we might expect eventually to reach the condition of China, where all effort is intuitively expended to protect the body against disease at the expense of intellectual advancement. The Chinaman, with his ancient civilization, slowly developed individual resistance to bad hygienic conditions. His resistance to the common diseases, his acquired immunity to many, and his ability to extract nourishment from ill-suited foods, not his dulled intellect, have made him a formidable competitor of the American laboring man and have caused his exclusion from our country.

The American Indian was nomadic without knowing why. By moving constantly from place to place he escaped the consequences of his filthy ways. Many of his descendants, living the life of the white man, died from filth-diseases. The life of the Indian was in direct proportion to his hygiene after he adopted a fixed abode.

We pride ourselves on our advancing civilization and intellectual superiority. If we are to continue to advance, the public health service must be made the first function of the State.

In the work of the medical profession lies the best hope for the future. Since the close of the Civil War, fifteen

years have been added to the average length of human life. With present knowledge and present conditions, fifteen years more might be added to the life of man in this country within the next twenty years. It is certain that ten years will be added, at the most productive age from the standpoint of industry, and will greatly aid in maintaining our position as the most productive nation. When I was a boy it was difficult for a man of forty to find a new job, and for a man of fifty it was practically impossible. Today the older men are great assets to the country. In the prolongation of their lives, their skill and experience in their particular work counts for much. They are less inflammable, they have family ties and responsibilities—they have something to lose—so that they are less under the influence of the violent agitator. If, as a nation, we advance the time of production for each person ten years, we can well afford to shorten hours of work and improve living conditions, and we shall be able to compete with those countries in which long hours and poor living conditions shorten human life, and eventually decrease production and increase social unrest.

The introduction of potable water has made prohibition possible. Prohibition will enormously increase production. In Vienna the per capita consumption of spirituous and fermented liquors was reduced 40 per cent. following the introduction of a pure water supply from the mountains. The failure of Italy and France to supply potable water necessitates the continuance of wine drinking, just as in Germany the use of beer will continue. If one traces the temperance movement through the States of the Union, he finds that it was not the appeal to the self control of man which was behind this great movement, but the advent of potable water.

Alcoholic drinks loosen the inhibitory control which civilization has imposed over the primitive impulses of man. Crime, accidents, and social diseases too often have had their origin in the abeyance, through alcohol, of individual self control. Pure water has eliminated typhoid; wholesome food and better living conditions which go with reduction of poverty will check tuberculosis, and better care of focal infections in the earlier decades will prevent many deaths in later life.

The arch enemy of middle age and beyond is cancer,

and our measures both for prevention and cure have not advanced in proportion to the increasing need. One woman in eleven and one man in thirteen die with cancer, and this proportion will be maintained in the enormously greater number of persons who reach the cancer age. We must spread more widely the knowledge that chronic irritation is the great underlying cause of the disease. Whenever a certain type of cancer exists in a race of men or in a country with great frequency as compared to other races or countries it is due to a single cause, usually a social custom. Good dentistry has eliminated a percentage of cancers of the jaw, due to the irritation of defective teeth. Cancer of the lip and tongue is on the increase as the habit of smoking is on the increase in both sexes. It seems to be a well established fact that in the countries in which the breasts are allowed to remain exposed to the air without covering, cancer of the breast is extremely rare and the incidence is in direct ratio to the amount of covering of the breast and the pressure exerted on it.

Thirty per cent. of all cancers in men and 21 per cent. in women are in the stomach. The influence of drinks too hot to be held comfortably in the mouth in the production of the chronic irritation which precedes the development of gastric cancer seems probable.

The majority of cancer patients come to operation too late to be cured. We cannot always demonstrate inoperability in a given case and therefore operation must be done in many questionable cases to give the patient the benefit of the doubt. The mortality in the favorable cases, of resection of the stomach for instance, is low, but some of the most extensive resections result in cures, although with a greatly increased risk. The paradox of increased experience accompanied by higher operative mortality and a smaller percentage of cures is seen; the explanation lies in the increased operability. The surgeon who reports only percentages of operative death rate and of cure without stating operability, gives us little information.

It is probable that there is a measure of immunity against cancer in all persons, and that this is sufficiently great in some to prevent them from having cancer. I have on several occasions been unable to remove all of a cancerous growth and, to my astonishment, the patient has remained well for a term of years. A search for the cause of

such immunity and a means of increasing it is greatly to be desired. The more primitive and important the function of an organ the greater its immunity.

The surgery of the past has been concerned largely with gross pathologic conditions. As our knowledge has increased diagnosis has improved, technic has advanced, and pathologic conditions are coming to operation much earlier. Surgery strives by every means within its power to reach pathologic processes before they have become gross, and the time is not far distant when treatment may, in some instances, be applied so early in the stage of deviation from the normal that surgery may be unnecessary.

Abstract sciences are being called to our aid, and scientific facts, apparently unrelated, are beginning to be understood in their relation to medicine. Much may be expected from bringing certain of the abstract sciences, especially physics, to aid biochemistry in giving us a better understanding of physiology and pathology.

In 1828 Brown, the botanist, pointed out that minute bodies of all kinds when suspended in gases and liquids are in constant motion. This movement of minute particles took the name of the Brownian movement. Thomas Graham, Master of the Mint in London, in 1861, called attention to colloids, showing that they were matter in a special state of subdivision which made each colloid particle an entity, but that except as to its physical state, the matter was unchanged. It has been shown that these colloid particles are endowed with movement and that while they are not visible they are of sufficient size to reflect rays of light as seen in an ultramicroscope. The movements of the colloids Graham recognized as being the movement described by Brown. Physicists have now shown that all matter is in motion, and that those particles more finely dispersed than colloids have even more rapid motion, but since the tissues of the body are matter largely in a colloidal state, we are interested principally in this type of energy. In colloids there is energy, and when the colloid particles change into a less dispersed state, for instance when a cloud which is water dispersed in a colloidal state in the air gives forth rain, the contained energy of the colloid, if the change be sufficiently sudden, is shown as thunder and lightning. The tissues of the body are in a colloidal state and retain their form and energy, while the non-colloidal elements of the

blood, such as sugar and amino acids, diffuse through the tissues, furnishing food which is utilized by the tissue colloids after the manner of an internal combustion engine.

Sir William Crookes, in his attempts to demonstrate the fourth state of matter, exhausted the air from a heavy glass bulb. When certain electric attachments were made, the bulb became filled with luminous matter, and, as Crookes expressed it, "actually touched the border land where matter and force seem to merge into one another." He named this luminous substance the cathode ray, composed of negative electrons, which is the fundamental conception of the X-ray. Crookes also pointed out that when X-rays come in contact with solid matter they give rise to shadows, and that the cathode rays, when outside a magnetic field, always travel in a straight line without regard to the position of the poles. The use of energy in the form of rays such as radium, X-ray, and heat are examples of biophysics in relation to medicine.

Medicine in the great war was triumphant. For the first time in the history of wars, the number of deaths from casualties was greater than the number of deaths from disease. Eighty-five and five-tenths per cent. (Billings) of the injured soldiers were able to return to the fighting line, and 5 per cent. more were made fit for special or limited military duty in areas in the rear; in the Civil War nearly half the soldiers were out of the war permanently after injury, and a high percentage were at all times too ill from disease to render efficient service in battle. In the Spanish-American War one man died of gunshot wounds to thirty who died of disease (Smart.)

The public has been almost unconscious of the growth of preventive medicine and public hygiene, and but little has been accomplished along these lines in comparison with all that may be done. Smallpox can be wiped from the earth; this has been done in Germany. The continuation of the disease in any country is a disgrace; it is due to the ignorance and prejudice of some, and the indifference and selfishness of others. The examination of school children and the giving of instruction with regard to teeth, tonsils, etc., is of primary importance in guarding against infections, infections which are responsible for those metabolic changes which later result in disease of the nervous system, and of the heart and kidneys.

Of all coöperative enterprises public health is the most important and gives the greatest returns. To obtain necessary legislation we must depend on the education of the public, and this, I am glad to say, is rapidly progressing. That there is much opposition to legislation for public health measures and that such opposition is always from the same group of obstructionists whose prejudices are believed by them to be principles and to whom controverting facts have no meaning, is well known. But such opposition is not entirely harmful. The agitators at least attract an audience before whom the truth may be placed. People as a whole are more interested in their individual affairs than in movements to enforce public health measures, and unless sickness actually exists in their own families, or unless they are in the midst of a strange epidemic, they pay very little attention to such matters.

Individually, no man is respected more highly than the physician. Collectively, doctors are often looked on as a nuisance because, in season and out of season, they try to advance public health measures to reduce sickness, and, obviously, to reduce the number of their patients. Such unusual acts of philanthropy are very apt to be viewed with suspicion by the general public and particularly by legislators who fail to understand why a man should destroy his means of earning a livelihood. Moreover, the public does not wish to be disturbed, or to be forced in the midst of health to dwell on the unpleasantness of sickness, much as the man who is irritated by being awakened in the night by a disturbance in the street, at the time cares little what the cause may be even if he is eventually to be benefited. Thus it is that the medical man in his efforts to secure health measures for the prevention of disease is not only treated with indifference but also is often vigorously opposed by the public and by legislators. The public may always be generously enlisted to remedy existing evil; to prevent some future evil is less appealing.

The surgeon is brought constantly in contact with persons suffering from diseases for which the knife is the best remedy. He is rewarded by the gratitude of his patients, and yet very often he furnishes a remedy for diseases that are unnecessary and preventable. On the other hand, the public health officer and the sanitarian, who save thousands of lives by preventive measures, are looked on as disturbers

of the public peace. The practise of preventive medicine calls for a man of the highest order, one who is endowed with the spirit of the crusader, and who is satisfied to do his duty without thought of reward.

In the last generation the whole trend of thought has been individualistic. Remedies are sought for deplorable conditions with little investigation of the underlying causes, and too often monetary considerations lead to action. An enormous number of undigested laws are passed at each session of a legislature and each law is supposed to be a dose of medicine for a particular evil. Some of the laws are necessary, others are unnecessary or harmful. Many of these are for the purpose of quieting popular clamor and not for enforcement. It is just such legislative follies and failures that lead to the disrespect for the law and make it so difficult for medical men to secure legislation for public health service. The public is badly advised, voiceless, and often powerless against the opposition of individual interests which would be adversely affected by the measures advocated. *At times it actually appears that those who profit by the physical and social diseases of man have a vested right in the continuance of the evil conditions which produce them.* Each era of law making, a little remedy for each little ill, however, is showing signs of evolution in the form of class legislation, such as the Workmen's Compensation and Health Insurance, a groping in the dark from the individualistic to the general in public health measures. Health insurance is sound doctrine if wisely administered, but unfortunately it is not based on the idea of keeping the workmen in health, but rather on caring for him when he is sick. In no way are the workmen as a group better protected from disease. Their medical attention is quite as competent or incompetent, perhaps a little cheaper, than before. Little attempt is made to organize or to improve medical service. The workman pays a certain definite amount for the year and is taken care of if he is sick. Sometimes a competent doctor is employed to do the work, but too often one who has been unsuccessful elsewhere and can be secured cheaply is employed.

Health insurance and its effect on workmen have been well illustrated in Germany. It was at first believed in Germany that such health legislation would reduce the percentage of sickness, for example, tuberculosis, and that the

death rate would be lowered because of earlier treatment. But the prevalence of and deaths from tuberculosis were not reduced. A fraction of the money spent would have protected not only the workmen, but also the entire population. This again demonstrates the futility of attempting to protect the individual, whether workman or not, from contagious and infectious diseases. The individual is an integral part of society and is endangered by the contagious diseases of any other individual; if he would be well himself he must see that his community as a whole keeps well.

The workman's compensation in some ways has been an economic loss. The workman with a felon on his finger, for instance, was entitled to the benefits of full time disability and remained inactive for two months, whereas, under ordinary circumstances, one week would have been the maximum full time, with a gradually increasing industrial output for the remainder of the period. This form of insurance also fostered malingering, and consequent industrial loss. Malingering finally became a public scandal in Germany. In England, too, health insurance measures have been badly carried out. The people who were supposed to be benefited were those to whom the state had already furnished more or less medical aid; under the health insurance act the same doctors cared for them exactly in the same way, and malingering in England also became prevalent. We should have health insurance for the workman who is ill, but such service should be adequately performed, wisely supervised, and should come from organized group medicine.

The medical profession is grouping itself along scientific lines, not for the benefit of the doctor, but in order that he may more adequately and satisfactorily perform his work. This will give patients the benefit of modern medical knowledge. It is not to be inferred that there will be no individual practice, or that all medicine will be practiced in groups. On the contrary, the State health departments are furnishing, through their laboratories, the diagnostic aid which gives the average practitioner expert reports on pathologic and bacteriologic specimens, and enables him to apply in the care of his patients the data which he personally has neither the time nor the training to develop. The State also furnishes, free of charge, diphtheria antitoxins, vaccine for smallpox, typhoid, etc. This im-

portant work of the State should be extended. Certainly 50 per cent. of all sickness is preventable, and it is the duty of the State to guard the health of its citizens through the prevention of disease. The people should be made to understand that the State is culpable if its citizens are allowed to become ill through manifest neglect. It is probable that such an understanding by the people would result in greater good through new legislation than all the work and all the sacrifices of the medical profession who have secured the present laws.

In the great work of the future, hospitals must play an important part. They are necessary to group medicine and they must be adequately equipped and properly conducted. When the people as a whole once understand that they have a right to health, they will demand that hospitals be standardized.

WILLIAM J. MAYO.